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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,725	11/21/2003	Frank-Dieter Zimmermann	FA1094USNA	3167

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WILMINGTON, DE 19805

EXAMINER

TSOY, ELENA

ART UNIT	PAPER NUMBER
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1762

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/719,725

Applicant(s)

ZIMMERMANN ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/03; 10/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-11, drawn to a process for application of powder coatings, classified in class 427, subclass 180.
- II. Claim 12, drawn to a coated surface prepared by a process of claim 1, classified in class 428, various subclasses.

Distinctness

The inventions are distinct, each from the other because:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as a process wherein a material is selected from the group consisting of carbon, graphite, magnetite, iron oxide, iron oxide black, tin oxide and antimony oxide in *combination* with a binder.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Hilmar L. Fricke on December 20, 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11. Affirmation of this election must be made by applicant in replying to this Office action. Claim 12 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Claim Objections

1. Claim 1 is objected to because of the following informalities: Claim 1, lines 7-9, "material, which absorbs high-energy radiation within a wavelength in the range of 250 to 2,500 nm and having heating rates of more than 50⁰C per second" should be changed to "material, which absorbs high-energy radiation within a wavelength in the range of 250 to 2,500 nm and havings heating rates of more than 50⁰C per second".
2. Claim 9 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 9 recites "a **combination** of NIR radiation and UV radiation is used to melt and cure the coating composition" which is not a further limitation of **NIR radiation** of claim 1 on which it depends.
3. Claim 11 is objected to because of the following informalities: "wherein the surface is a thick metal substrate having a thickness of 3 mm or more" should be changed to "wherein the surface is the surface of a thick metal substrate having a thickness of 3 mm or more".

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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5. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 1 recites "material which absorbs high-energy radiation within a wavelength in the range of 250 to 2,500 nm and having heating rates of **more** than 50⁰C per second", claim 4 recites "**more** than 65⁰C per second", and claim 8 recites "**more** than 1 W/cm²", which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention because it is hardly possible to have material having heating rates of *unlimited* degree C per second or unlimited *intensity*.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The language of claim 1 "a) covering the surface with material, which absorbs high-energy radiation within a wavelength in the range of 250 to 2,500 nm and having heating rates of more than 50⁰C per second" renders the claim indefinite because it is not clear whether absorption of high-energy radiation within a wavelength in the range of 250 to 2,500 nm and heating rates of more than 50⁰C per second are *inherent* properties of the material or the particular radiation is applied to the material. For examining purposes the language of claim 1 "a) covering the surface

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with material, which absorbs high-energy radiation within a wavelength in the range of 250 to 2,500 nm and having heating rates of more than 50⁰C per second” was interpreted as a step of covering the surface with material, which has *inherent* properties of being capable of absorbing high-energy radiation within a wavelength in the range of 250 to 2,500 nm and having heating rates of more than 50⁰C per second.

Claim 9, lines 1-2, “a combination of NIR radiation and UV radiation is used to melt and cure the coating composition” renders the claim indefinite because it contradicts “melting and curing the applied powder coating composition **with NIR radiation**” of claim 1 on which it depends.

Claim 5 recites “the covering step is realized by means of flaming or in-moulding procedures” which renders the claim indefinite because neither the specification nor claims describe meaning of the flaming or in-moulding procedures.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1, and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Applicant's admitted state of art in view of Blatter et al (WO 99/41323).

The Examiner Note: instead of WO 99/41323 in German, the Examiner cited US 6,406,757 of the same patent family.

Applicants admitted that the use of powder coatings to coat non-metallic substrates is much more difficult than coating metallic substrates with powder coatings due to the insufficient surface conductivity of the substrate and inefficient grounding of the substrate, and as a result, the powder coating is deposited unevenly and the adhesion of the powder coating to the substrate is poor (See P5). It is known to pre-treat *wood*-based substrates with a liquid conductive primer prior to the application of a **powder** (See P6).

It is the Examiner's position that the liquid *conductive* primer is material as claimed, because **any** material is capable of absorbing high-energy radiation within a wavelength in the range of 250 to 2,500 nm and having heating rates of more than 50⁰C per second, depending on thickness of the coating and radiation dose.

Applicants admitted that the prior art fails to teach that the powder coating applied on the *wood*-based substrate is formed from a powder, which can be melted and cured with NIR (Claim 1); wherein NIR irradiation at a wavelength between 800 and 1200 nm and with an intensity of more than 1 W/cm² is used to melt and cure the coating composition (Claim 8).

Blatter et al teach a powder coating composition, which is suitable for coating temperature-sensitive non-metallic substrates such as **wood** by melting and curing an applied coating with NIR (See Abstract; column 5, lines 21-36) at frequencies of 750-12000 nm (See column 5, lines 1-4) and a power of e.g. more than 1 W/cm² (See column 5, lines 13-15).

It is held that the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). See MPEP 2144.07.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a powder coating composition of Blatter et al for coating *wood*-based substrates

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in Applicant's admitted state of art primed with a conductive coating, by melting and curing with NIR since Blatter et al teach a powder coating composition, which is suitable for coating temperature-sensitive non-metallic substrates such as **wood** by melting and curing an applied coating with NIR.

As to claim 9, Blatter et al teach that it was known in the art that curing pigmented UV-curing powder composition with UV was problematic because the powder composition had to be melted first and then cured with UV but UV was absorbed by the coloring components such that achieving a complete cure of the coating is difficult (See column 1, lines 37-43). Blatter et al teach that it was also known in the art to use NIR for melting and curing without substantially heating a substrate (See column 1, lines 45-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used UV-curing powder composition for coating heat-sensitive substrates in the cited prior art and have used a combination of NIR and UV for curing the coated substrate with the expectation of providing the desired complete cure by melting with NIR and curing with UV without substantially heating a substrate.

As to claim 11, the limitations of claim 11 are not addressed because they are directed to a non-elected substrate.

10. Claims 1-4, 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted state of art in view of Blatter et al, further in view of Nickerson (US 3,860,506).

Applicant's admitted state of art in view of Blatter et al are applied here for the same reasons as above. Applicant's admitted state of art in view of Blatter et al fails to teach that the

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material is selected from the group consisting of carbon, graphite, magnetite, iron oxide, iron oxide black, tin oxide and antimony oxide (Claims 1, 2) or carbon or graphite (Claim 3)

Nickerson teaches that a *graphite* coating may be used to provide a superior conductive base for electrostatic deposition on non-conductive bodies (See column 4, lines 23-28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a *graphite* coating in Applicant's admitted state of art in view of Blatter et al instead of liquid conductive primer with the expectation of providing the desired superior conductive base for electrostatic deposition on non-conductive wood based substrates, as taught by Nickerson.

11. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted state of art in view of Blatter et al, further in view of Nickerson, and further in view of Kawada et al (US 5,663,865) and Honda et al (US 6,800,374).

The cited prior art is applied here for the same reasons as above. The cited prior art fails to teach that the covering step is realized by means of flaming or in-moulding procedures and with a layer thickness in the range of 0.1 to 10 microns (Claim 5) or in the range of 0.5 to 1 microns (Claim 6).

Kawada et al teach that electroconductive layers of pyrolytic graphite to serve as electrostatic electrodes can be formed by the deposition of graphite produced by pyrolysis of, for example, methane at a temperature of 1900⁰ to 2200⁰C (claimed flaming or in-moulding) on the respective flat surfaces (See column 4, lines 45-51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have deposited a graphite layer in the cited prior art by pyrolysis of e.g. methane since Kawada et al teach that electroconductive layers of pyrolytic graphite to serve as electrostatic

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electrodes can be formed by the deposition of graphite produced by pyrolysis of, for example, methane at a temperature of 1900⁰ to 2200⁰C (claimed flaming or in-moulding) on the respective flat surfaces.

As to claimed thickness, it is well known in the art that electric resistivity of an electroconductivlayer depends on the thickness of the layer, as evidenced by Honda et al (See column 11, lines 54-65). It is held that it is not inventive to discover the optimum or workable ranges of result-effective variables by routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum values of the relevant thickness parameters (including those of claimed invention) in the cited prior art through routine experimentation in the absence of showing of criticality.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday; 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-142323. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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Elena Tsoy
Primary Examiner
Art Unit 1762

ELENA TSOY
PRIMARY EXAMINER

Etsay

January 16, 2007